AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF THE CLAIMS

Please cancel claims 1, 19, 20 and 24 without prejudice and amend claims 2-10 and 17.

Please add new claims 25 and 26.

1. (Canceled)

2. (Currently amended) A method according to claim [[1]] 21 in which the soluble solid is a salt, and the solvent is water.

3. (Currently amended) A method according to claim [[2]] 21 in which the solid is cesium chloride.

4. (Currently amended) A method according to claim [[1]] 21 in which the substrate comprises an SiO_2 layer on silicon.

5. (Currently amended) A method according to claim [[1]] 21 in which the substrate comprises gallium arsenide, indium antimonde, indium antimonide or another semiconductor material.

6. (Currently amended) A method according to claim [[1]] 21 in which the resist material is deposited by evaporation, sputter deposition, or chemical vapour deposition.

7. (Currently amended) A method according to claim [[1]] 21 in which the resist material comprises aluminum.

8. (Currently amended) A method according to claim [[1]] 21 in which the removal of the coated hemispherical structures is achieved by a lift-off process

which comprises submerging the structure in an ultrasonic agitation bath filled with solvent, whereby the islands are dissolved and their coatings detached, leaving a perforated film over the remainder of the substrate to act as an etchant resist.

9. (Currently amended) A method according to claim [[1]] 21 in which the etching is achieved by directional etching such as reactive ion etching or laser etching to make well-like structures.

10. (Currently amended) A method according to claim [[1]] 21 in which the evaporation of resist material is achieved by directing the vapour stream at a grazing angle of incidence to the substrate, so that each island casts a shadow in which there is no vapour deposition, whereby the holes remaining in the film after removal of the hemispherical structures will be elongated.

Claims 11-16 (Canceled)

17. (Currently amended) A crystalline heterostructure formed by the method of claim [[11]] 21 in which one of the materials is a semiconductor and one is an insulator, the structure being arranged to form a gate dielectric device, or an integrated optical waveguide device, or a surface acoustic wave delay line together with associated circuitry as required.

18. (Original) A structure according to claim 17 in which the insulator has a high dielectric constant.

19 - 20. (Canceled)

21. (Previously presented) A method of forming an array of features comprising:

(a) depositing a film of a soluble solid onto a surface of a hydrophilic substrate;

(b) exposing the film to solvent vapour so that the film reorganises into an array of discrete hemispherical islands on the surface;

(c) depositing a film of a resist material over the surface, the film having a thickness of less than a fifth of an average diameter of the islands;

(d) removing the hemispherical structures together with their coating of resist leaving a resist layer with an array of holes corresponding to the islands; and

(e) subjecting the resulting structure to an etching process so as to form a well at the position of each hole.

22. (Previously presented) A method of forming an array of features comprising:

(a) depositing a film of a soluble solid onto a surface of a hydrophilic substrate;

(b) exposing the film to solvent vapour so that the film reorganises into an array of discrete hemispherical islands on the surface;

(c) depositing a film of a resist material over the surface by directing a vapour stream of resist material at a grazing angle of incidence to the surface;

(d) removing the hemispherical structures together with their coating of resist leaving a resist layer with an array of holes corresponding to the islands; and

(e) subjecting the resulting structure to an etching process so as to form a well at the position of each hole.

23. (Previously presented) A method according to claim 22, wherein the islands cast a shadow in which there is no vapour deposition.

24. (Canceled)

25. (New) A method of forming a crystalline heterostructure comprising two component materials having different lattice structures, in which the materials are arranged to contact each other via a plurality of discrete regions, the method comprising the steps of:

(a) forming a layer of the first material;

(b) forming an insulating layer on the surface of the first material so as to provide a hydrophilic substrate;

(c) depositing a film of a soluble solid onto a surface of the hydrophilic

substrate;

(d) exposing the film to solvent vapour so that the film reorganises into an array of discrete hemispherical islands on the surface;

(e) depositing a film of a resist material over the surface;

(f) removing the hemispherical structures together with their coating of resist leaving a resist layer with an array of holes corresponding to the islands;

(g) subjecting the resulting structure to an etching process so as to form a well at the position of each hole; and

(i) growing crystals of the second material on the first material in the regions exposed by the holes so as to form an island at the position of each hole; wherein said two component materials are both metals.

26. (new) A method of forming a crystalline heterostructure comprising two component materials having different lattice structures, in which the materials are arranged to contact each other via a plurality of discrete regions, the method comprising the steps of:

(a) forming a layer of the first material;

(b) forming an insulating layer on the surface of the first material so as to provide a hydrophilic substrate;

(c) depositing a film of a soluble solid onto a surface of the hydrophilic substrate;

(d) exposing the film to solvent vapour so that the film reorganises into an array of discrete hemispherical islands on the surface;

(e) depositing a film of a resist material over the surface;

(f) removing the hemispherical structures together with their coating of resist leaving a resist layer with an array of holes corresponding to the islands;

(g) subjecting the resulting structure to an etching process so as to form a well at the position of each hole; and

(i) growing crystals of the second material on the first material in the regions exposed by the holes so as to form an island at the position of each hole; wherein at least one of the two component materials is a metal compound comprising MaAs, MnSb, NiMnSb, PtMaSb, CuMnSb, LuPdSb, CO_2MnGe, or CrO_2.